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Mazdoor Kisan Shakti Sangathan

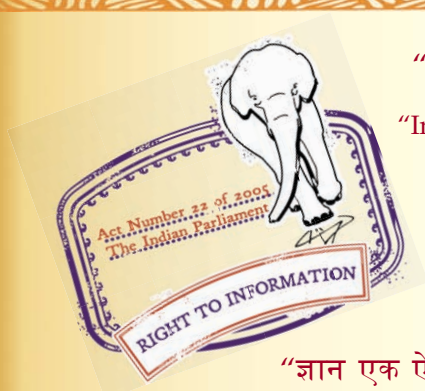
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 5992 (1970): P-Dichlorobenzene, Technical [PCD 9: Organic Chemicals Alcohols and Allied Products and Dye Intermediates]



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Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

REAFFIRMED

1987

SPECIFICATION FOR
p-DICHLOROBENZENE, TECHNICAL

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR

p-DICHLOROBENZENE, TECHNICAL

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SPECIFICATION FOR

p-DICHLOROBENZENE, TECHNICAL

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 4 November 1970, after the draft finalized by the Organic Chemicals (Miscellaneous) Sectional Committee had been approved by the Chemical Division Council.

0.2 *p*-Dichlorobenzene is primarily used as a moth preventive. It has fungicidal properties also and will prevent mould growth on leather, fabrics and similar materials. It also finds its use as deodorant and in the synthesis of some organic chemicals.

0.3 In the preparation of this standard, assistance has been derived from O-P-0099a (GSA-FSS) ' Specification for paradichlorobenzene, technical ', issued by General Service Administration, Federal Supplies Service, Washington, DC.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for *p*-dichlorobenze, technical.

2. REQUIREMENTS

2.1 Description — *p*-Dichlorobenzene is a white crystalline solid which tends to turn pinkish with age and has a pleasant odour.

2.2 The material shall comply with the requirements given in Table 1 when tested according to the methods given in Appendix A. Reference to the relevant clauses of the appendix is given in col 4 of the table.

*Rules for rounding off numerical values (revised).

TABLE 1 REQUIREMENTS FOR *p*-DICHLOROBENZENE, TECHNICAL

(Clause 2.2)

SL No.	CHARACTERISTIC	REQUIREMENT	METHODS OF TEST (REF TO CL NO. IN APPENDIX A)
(1)	(2)	(3)	(4)
i)	Appearance of melted crystals	Shall be free from turbidity and suspended matter	A-2
ii)	Crystallizing point, °C	52.0 to 53.5	A-3
iii)	Residue on evaporation, percent by weight, <i>Max</i>	0.05	A-4

3. PRECAUTIONS IN STORING AND HANDLING

3.1 *p*-Dichlorobenzene is combustible and will burn if it comes in contact with an open flame and therefore should not be stored near highly flammable and dangerous reactive materials. Open flames and smoking shall not be allowed where it is stored or handled.

4. PACKING AND MARKING

4.1 The material shall be packed, stored and transported in galvanized drums. Mild steel drums, plywood or fibre drums may also be used with a polyethylene liner. All the containers in which the material is packed shall be clean and dry. *p*-Dichlorobenzene sublimes readily without leaving any residue and, therefore, the containers should be kept airtight.

4.2 The material shall be supplied in accordance with the marking and delivery instructions given by the purchaser.

4.3 Each container shall be marked with the following:

- a) Name of the material;
- b) Name of the manufacturer and recognized trade-mark, if any;
- c) Net weight of contents; and
- d) Batch number or date, or both, of manufacture.

4.3.1 The containers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. SAMPLING

5.1 Representative samples of the material shall be drawn and their conformity shall be judged as prescribed in Appendix B.

APPENDIX A

(Clause 2.2, and Table 1)

METHODS OF TEST FOR *p*-DICHLOROBENZENE, TECHNICAL

A-1. QUALITY OF REAGENTS

A-1.1 Unless specified otherwise, pure chemicals and distilled water (see IS : 1070-1960*) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the result of analysis.

A-2. APPEARANCE OF MELTED CRYSTALS

A-2.1 Procedure — Half fill a clean dry test tube of 25 × 200 mm with the material and immerse in a water-bath kept at a temperature of 60 to 70°C until all the crystals are melted. Examine the melted crystals for turbidity and suspended matter.

A-3. DETERMINATION OF CRYSTALLIZING POINT

A-3.0 Outline of the Method — The material is melted and then slowly cooled to determine its crystallizing point by observation of the temperature during crystallization under prescribed conditions.

*Specification for water, distilled quality (revised).

A-3.1 Apparatus — The crystallizing point apparatus of the shape, dimensions and tolerance as given in Fig. 1, consists of the following.

A-3.1.1 Outer Glass Test-Tube — It serves as an air jacket. It is provided with a cork through which the inner tube is held in position (see A-3.1.2).

A-3.1.2 Inner Glass Test-Tube — It is fitted with a cork which carries a stirrer in the form of a loop of glass with a glass stem and the thermometer placed centrally within the tube and the glass loop. The bottom of the bulb of the thermometer shall be about 10 mm from the bottom of the inner tube. The cork is so fixed that the immersion mark on the thermometer is in level with the top of the cork.

A-3.1.3 Thermometer — of convenient range (say 40 to 65°C), of mercury-in-glass type, graduated at every 0.1°C and having a maximum error of 0.1°C. The thermometer shall be certified by the National Physical Laboratory, New Delhi or any other authorized laboratory.

A-3.2 Procedure — Half fill the clean dry inner tube with the material and immerse about 50 mm of the tube in a hot water-bath, at a temperature of 60 to 70°C until melted. Remove the tube from the bath and insert it in the outer tube and close the inner tube with the cork carrying the stirrer and the thermometer. Take thermometer readings at intervals of half a minute with continuous and gentle stirring. The crystallizing point corresponds to the highest of the first five consecutive readings (corrected for thermometer error) during which the temperature remains constant within 0.01°C.

A-4. DETERMINATION OF RESIDUE ON EVAPORATION

A-4.1 Apparatus

A-4.1.1 Basin — made of silica or porcelain.

A-4.2 Procedure — Evaporate about 50 g of the material, accurately weighed, in a tared basin over a steam-bath till dryness. Wipe the bottom and dry the residue in an air-oven maintained at $175 \pm 5^\circ\text{C}$ for two hours. Cool in a desiccator and weigh.

A-4.3 Calculation

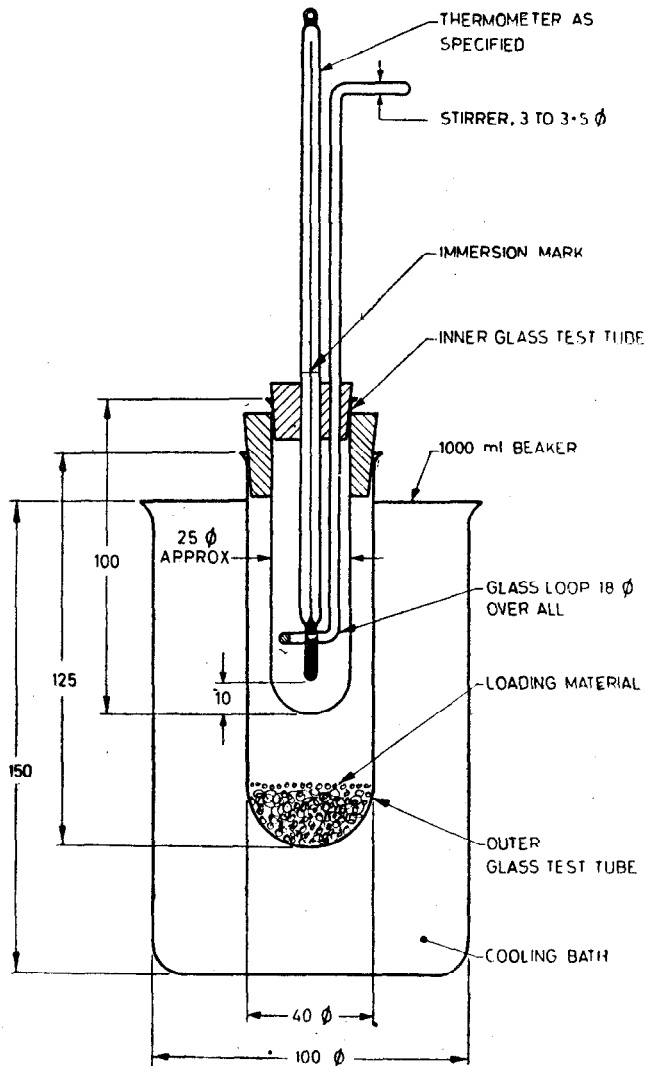
$$\text{Residue on evaporation, percent by weight} = 100 \times \frac{A - B}{C - B}$$

where

A = weight in grams of the basin with the residue,

B = weight in grams of the basin, and

C = weight in grams of the basin with the material.



All dimensions in millimetres.

FIG. 1 APPARATUS FOR DETERMINATION OF CRYSTALLIZING POINT

APPENDIX B

(Clause 5.1)

SAMPLING OF *p*-DICHLOROBENZENE

B-1. GENERAL REQUIREMENTS

B-1.1 In drawing, preparing, storing and handling test samples, the precautions mentioned in 3.1 and 4.1 shall strictly be observed.

B-1.2 Sampling implements and containers shall be kept clean and dry.

B-1.3 To draw a representative sample, the contents of each container selected for sampling shall be mixed as thoroughly as possible by suitable means.

B-2. SCALE OF SAMPLING

B-2.1 Lot — All the containers in a single consignment of the material drawn from a batch of manufacture shall constitute a lot.

B-2.2 For ascertaining the conformity of the lot to the requirements of this specification, tests shall be carried out for each lot separately. The number (n) of containers to be selected for drawing out the samples shall depend upon the size (N) of the lot and shall be in accordance with Table 2.

B-2.3 These containers shall be selected at random from the lot and to ensure the randomness of selection, random number tables shall be used. For guidance to the use of random number table, reference may be made to IS : 4905-1968*.

TABLE 2 NUMBER OF CONTAINERS TO BE SELECTED FOR SAMPLING

(Clause B-2.2)

LOT SIZE	NO. OF CONTAINERS TO BE SELECTED
N	n
(1)	(2)
Up to 10	3
11 „ 25	4
26 „ 50	5
51 „ 100	6
101 and above	7

*Methods of random sampling.

6-3. PREPARATION OF TEST SAMPLES

B-3.1 From each of the containers selected as in **B-2.2** draw with an appropriate sampling implement about 300 g of the material. Out of this portion from each container equal quantity of the material shall be taken and thoroughly mixed together to form a composite sample weighing 200 g. The remaining portion corresponding to each of the selected containers shall be transferred to separate sample bottles which shall be closed airtight after filling and be marked with relevant details of sampling. These filled sample bottles are termed as individual samples. The composite sample also shall be transferred to a separate bottle and be marked with sampling details.

B-3.2 Test for description and crystallizing point shall be conducted on each of the individual samples. Test for appearances of melted crystals and determination of residue on evaporation shall be made on the composite sample.

6-4. CRITERIA FOR CONFORMITY

B-4.1 The lot shall be declared as conforming to the requirements for description and crystallizing point if each of the individual samples passes the tests.

B-4.2 For the remaining characteristics, the lot shall be declared satisfactory if the composite sample complies with the corresponding requirements.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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